

**What Is Claimed Is:**

1. A common rail fuel injection control device which comprises a supply pump for pumping a fuel into a common rail and a metering valve for adjusting the fuel pumping quantity in the supply pump and in which the metering valve is controlled to a base target opening degree determined based on an engine operation state by a duty drive signal, wherein said duty drive signal is caused to oscillate periodically.

2. The common rail fuel injection control device according to claim 1, wherein the oscillation range of said duty drive signal is caused to change according to the engine operation state.

3. A common rail fuel injection control device comprising:
- a common rail for accumulating a high-pressure fuel;
  - a supply pump for pumping the fuel into the common rail;
  - a metering valve for adjusting the fuel pumping quantity in the supply pump;
  - means for detecting the engine operation state;
  - means for detecting an actual common rail pressure;
  - means for computing a target common rail pressure based on the engine operation state; and
  - means for controlling the opening degree of the metering valve by a duty drive signal so that the pressure difference between said target common rail pressure and said actual common rail pressure becomes zero, the control device further comprising:
    - means for determining the value of a base duty equivalent to a base target opening degree of said metering valve based on said pressure difference;
    - means for generating the value of an oscillation duty which oscillates with a constant period and a constant amplitude; and
    - means for determining the value of a final duty which has to be applied to said metering valve by adding the value of said oscillation duty to the value of said base duty.

4. The common rail fuel injection control device according to claim 3, further comprising:

means for determining a correction coefficient based on the engine operation state; and

means for determining the value of said final duty by adding the value obtained by multiplying the value of said oscillation duty by said correction coefficient to the value of said base duty.

5. The common rail fuel injection control device according to claim 4, wherein said target common rail pressure and said correction coefficient are determined based on the engine revolution speed, and the target fuel injection quantity determined by the engine revolution speed and accelerator opening degree.

6. The common rail fuel injection control device according to claim 4, wherein said correction coefficient is set so as to assume a smaller value as said engine revolution speed increases and also to assume a smaller value as said target fuel injection quantity increases.

7. The common rail fuel injection control device according to claim 5, wherein said correction coefficient is set so as to assume a smaller value as said engine revolution speed increases and also to assume a smaller value as said target fuel injection quantity increases.

8. The common rail fuel injection control device according to claim 4, wherein said correction coefficient is set so as to become zero when said engine revolution speed is not less than the prescribed value and when said target fuel injection quantity is not less than the prescribed value.

9. The common rail fuel injection control device according to claim 5, wherein said correction coefficient is set so as to become zero when said engine revolution speed is not less than the prescribed value and when said target fuel injection quantity is not less than the prescribed value.

10. The common rail fuel injection control device according to claim 6, wherein said correction coefficient is set so as to become zero when said engine revolution speed is not less than the prescribed value and when said target fuel injection quantity is not less than the prescribed value.